

U.S. Department of Labor

Program Highlight



Fact Sheet No. BLS 96-5

How BLS Uses Rent Data in the Consumer Price Index

Residential rent and owners' equivalent rent are the two main shelter components of the Consumer Price Index (CPI). Other shelter components include Other renters' costs (such as Lodging while out of town, Lodging while at school, and Tenants' insurance), Household insurance, and Household maintenance and repairs. The CPI Housing Survey is the source of data that measures monthly changes in the cost of shelter for renters and owner occupants.

The Shelter index includes the components shown below with the relative importance of each index. These data are for the U.S. city average of the CPI for All Urban Consumers (CPI-U) as of December 1997:

<i>Item</i>	<i>Relative importance</i>
Shelter	29.788
Rent of primary residence	6.885
Lodging away from home	2.327
Owners' equivalent rent	
of primary residence	20.199
Tenants' and household insurance377

The Housing Survey interviews respondents in about 35,000 renter-occupied housing units every 6 months on a rotating basis. About 30,000 additional owner-occupied units are interviewed every 2 years, also on a rotating basis. The housing units may be of any type: Single detached; within multi-unit buildings; or mobile homes.

The Bureau of Labor Statistics (BLS) measures the change in the monthly costs for renters directly from this survey data. However, BLS uses a "rental equivalence" approach for owners; rental equivalence measures the change in the owner's implicit rent, the monthly value of the shelter services provided by the home. Because

The Residential Rent Index

Renter data collection

For renter-occupied housing, BLS collects data on household size, the amount of rent paid, any extra charges, and what renters get for their rent, that is, the number of bedrooms, bathrooms, and other rooms in the unit; the types of utilities and facilities provided; the type of energy used for heating and cooling; etc.

Calculating economic rents

BLS derives the monthly economic rent for each renter unit in the survey. Economic rent is the payment in exchange for all services the landlord provides, as well as the value of certain rent reductions. For example, if the landlord provides electricity, the economic rent includes electricity. BLS excludes the value of changes in the quality of the item from its measure of price change.

When there is a change in what renters get for their rents, there is a quality change, which may be either positive or negative. For example, the landlord stops paying for electricity and the tenant must now pay the bill. If the rent does not change, the renter gets less for the rent payment. BLS adjusts the current rent to make it consistent with the previous rent. In this example, an estimate of the electricity charge is added to the current rent to show an increase in the economic rent. BLS adjusts rents for most changes in utilities (electric, gas, fuel oil, etc.) and facilities (refrigerator, dishwasher, laundry equipment, etc.).

¹ See Fact Sheet No. BLS-96-6 "How the Consumer Price Index Measures Homeowners' Costs" for additional information on the Homeowners' Costs component of the CPI.

implicit rent is not a market transaction, BLS must estimate the implicit rents of owner occupants.¹

In addition, landlords commonly reduce the rent they charge when the tenant performs a service or a third party pays part of the rent. The value of any reduction for these reasons is applied to the current economic rent to make it consistent with the previous data. For example, in the summer a tenant cuts the grass, so the rent is reduced by \$50, but in the winter the tenant does not perform that service or receive the rent reduction. BLS would add \$50 to the summer rent, because the tenant is supplying \$50 of service to the landlord in lieu of \$50 in cash.

Calculating changes in economic rents

The CPI spreads the collection of the rent sample over a 6-month period by dividing it into six representative subsamples called "panels." Each panel contains housing units in every CPI area, so the price movement of the panel is a good estimate of the price movement for housing in the urban United States.

Calculating the Residential Rent Index

Because each renter housing unit in the sample represents many renter units in the renter universe, it has a weight equal to the number of renter units it represents. Multiplying the economic rents by the weight yields weighted economic rents for each unit, which are estimates of the total rent that portion of the renter universe is paying. The weighted economic rents are then aggregated across all the usable units in the CPI area to yield total weighted economic rents for a CPI area.

The 6-month change is calculated as follows:

$$\frac{\text{Current month total weighted economic rents}}{\text{6-months earlier total weighted economic rents}}$$

Estimation

The estimation formula for the Residential Rent Index is as follows: An estimate of the 1-month change is derived by taking the 6th root of the 6-month change. The current index is equal to the index from the prior month multiplied by the estimated 1-month change. This result is the Residential Rent Index for each CPI area.

The Owners' Equivalent Rent Index¹

Owner data collection

The CPI spreads the collection of the owner sample over a 2-year period. In addition to asking for household-size data, BLS asks each homeowner for their estimate of the house's implicit rent and what occupants would get for their rent (how many rooms, etc.) if the owner did rent their home.

Calculating changes in implicit rents

BLS does not use changes in the estimates of the implicit rent to calculate the Owners' Equivalent Rent Index. These estimates are only used for the initial level of the implicit rents. BLS estimates changes in implicit rent from changes in the rents of units in the rent sample which have been adjusted to exclude utilities and facilities. BLS uses a process called owner-renter matching, which assigns to each owner unit a set of renter units that match the location, structure type, and general characteristics of each owner unit as closely as possible.

BLS derives an implicit rent for each owner unit in the survey from the initial value estimated by the homeowner and the change in adjusted rents from the matched set of renters. The 6-month change in the average adjusted rents for the matched renters is used to update the owner unit's implicit rent from 6 months earlier to the current month. When this is done, BLS has estimates of the current month's and 6-month's previous implicit rents, which are essentially the same data it collects directly for renter-occupied units.

Calculating the Owners' Equivalent Rent Index

Because each owner housing unit in the sample represents many owner units in the owner universe, it has a weight equal to the number of owner units it represents, just like the renter sample. In addition, because there are now implicit rents and weights for each owner unit, the same procedures that were used with the economic rents for the Residential Rent Index are used to calculate 6-month changes in the implicit rents for the Owners' Equivalent Rent Index.

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